05-18-2000 Form PTO 1595 101360609 To the Honorable Commissioner for Patents and Trademarks: Please record the authened original documents or copy thereof. 2. Name and address of receiving Party(ies) 1. Name of Conveying party(ies): Se-Jin Lee

| b. Alexandra McPherron | MEDICINE MEDICINE | |
|--|---|--|
| Additional name(s) of conveying party(ies) attached? Yes _X No | Internal Address: Street Address: | |
| 3. Nature of conveyance: X Assignment | City: Baltimore State: MD Zip: 21202 Additional name(s) & address(es) attached? YesX_ No: | |
| Application number(s) or patent number(s): If this document is being filed together with a new application. | on, the execution date of the application is: | |
| A. Patent Application No.(s) 09/485,046 | B. Patent No.(s) 09/485046 | |
| Additional number | s attached? YesX No | |
| 5. Name and address of party to whom correspondence concerning document should be mailed: | 6. Total number of Applications and patents involved: 1 | |
| Name: Lies A Haila Dh D | 7. Total fee (37 CFR 3.41) \$.40.00 | |

GRAY CARY WARE & FREIDENRICH LLP Street Address 4365 Executive Drive, Suite 1600

City: San Diego State: CA Zip: 92121

Enclosed

Authorized to charge the recordation fee or any underpayment to deposit account.

8. X Deposit account Number: 07-1895

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9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attaged to be a true copy of the original document.

Lisa A. Haile, Ph.D.

Name of Person Signing Registration No. 38,347

Total number of pages including cover sheet, attachments, and document:

PATENT

REEL: 010787 FRAME: 0109

ASSIGNMENT (BY INVENTOR(S))

This assignment ("Assignment") is made by Se-Jin Lee, of Baltimore, MD; and Alexandra McPherron of Baltimore, MD (collectively, the "Assignors") to THE JOHNS HOPKINS UNIVERSITY, a non-profit organization ("Assignee"), having a place of business at 111 Market Street, Suite 906, Baltimore, MD 21202.

Recitals

- A. Each of the Assignors has invented a new and useful invention entitled GROWTH DIFFERENTIATION FACTOR (GDF) RECEPTORS for which an application for United States Letters Patent was filed on January 31, 2000 in the United States Patent and Trademark Office.
- B. Each of the Assignors authorizes and requests insertion of the serial number of the application when officially known:

The United States Application Serial No.: 09/485,046.

- C. Each of the Assignors believes the Assignors to be the original, first and joint inventors of the invention disclosed and/or claimed in the application for Letters Patent.
- D. The parties desire to have a recordable instrument assigning from the Assignors to the Assignee the entire rights, title and interest in and to the invention, the application and all Letters Patent in the United States and throughout the world that may be granted or issued for the invention or that derive a right of priority from the application (including, without limitation, all divisional, continuation, continuation-in-part and continued prosecution applications thereof, and all reissues and reexaminations thereof, and all foreign counterparts thereof) (collectively, the "Invention Patents").

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PATENT REEL: 010787 FRAME: 0110

Agreement

NOW, THEREFORE, in accordance with the obligations to assign the Invention Patents and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each of the Assignors agrees to the foregoing and as follows:

- 1. Each of the Assignors does and will sell, assign and transfer to Assignee, such Assignor's entire rights, title, and interest in and to each of the Invention Patents, including, without limitation, the rights to file foreign applications directly in the name of the Assignee and to claim for any such foreign applications any priority rights to which such applications are entitled under international conventions, treaties, or otherwise.
- 2. Each of the Assignors agrees that, upon request and without further compensation, but at no expense to such Assignor, such Assignor and such Assignor's legal representatives and assigns will do all lawful acts, including the execution of papers and the giving of testimony, that may be necessary or desirable for obtaining, sustaining, reissuing, or enforcing each of the Invention Patents in the United States and throughout the world, and for perfecting, recording, or maintaining the title of Assignee, and Assignee's successors and assigns, in and to each of the Invention Patents in the United States and throughout the world. In the event that Assignee is unable for any reason to secure any of the Assignors' signatures to any document that may be necessary or desirable for obtaining, sustaining, reissuing, or enforcing each of the Invention Patents in the United States and throughout the world, or for perfecting, recording, or maintaining the title of Assignee, and Assignee's successors and assigns, in and to each of the Invention Patents in the United States and throughout the world, each such Assignor hereby irrevocably designates and appoints Assignee and Assignee's duly authorized officers and agents as such Assignor's agents and attorneys-in-fact to act for and on such Assignor's behalf and instead of such Assignor to execute such document, all with the same legal force and effect as if executed by such Assignor.
- 3. Each of the Assignors represents and warrants that such Assignor has not granted and will not grant to others either (1) any rights, title or interest in and to any of the Invention Patents, or (2) any rights inconsistent with the rights granted herein.

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- 4. Each of the Assignors authorizes and requests the Assistant Commissioner for Patents of the United States and the various counterparts thereof throughout the world to issue and/or grant any Letters Patent granted for each of the Invention Patents to Assignee, its successors and assigns, as the assignee of the entire interest in such Invention Patents.
- 5. This Assignment constitutes the entire agreement with respect to its subject matter and supersedes all prior or contemporaneous oral or written agreements concerning such subject matter. No waiver, amendment, or modification of this Assignment shall be effective against the Assignee, unless in writing executed by a duly authorized representative of the Assignee. This Assignment shall be governed in all respects by the laws of the United States of America and by the laws of the state/province of California, as such laws are applied to agreements entered into and to be performed entirely within California between California residents. Each of the parties irrevocably consents to the exclusive personal jurisdiction of the federal and state courts located in California, as applicable, for any matter arising out of or relating to this Assignment, except that in any action seeking to enforce any order or any judgment of such federal or state courts located in California, such personal jurisdiction shall be nonexclusive. A breach of any of the promises or agreements contained herein will result in irreparable and continuing damage to Assignee for which there will be no adequate remedy at law, and Assignee shall be entitled to injunctive relief and/or a decree of specific performance, and such other relief as may be proper.

| Dated: | 3/2/00 | 56- |
|---------------|---------------------|------------|
| | | Se-Jin Lee |
| Dated: 3/2/00 | alexanda McPheur | |
| | Alexandra McPherron | |

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RECORDED: 05/05/2000

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